AMER. ZOOL., 31:903–905 (1991)

INDEX TO VOLUME 31

The index covers only the major papers, their authors, and the principal headings. It does not include the abstracts. For the latter there is a separate index to authors on pages 147A–154A. Minutes of business meetings, officers, and reports are entered only under American Society of Zoologists.

ABLE, KENNETH P., Common themes and variations in animal orientation systems, 157–167.
Abstracts, see note above.
  Index of authors, annual meeting, Atlanta, Georgia, 147A–154A.
  Of annual meeting, Atlanta, Georgia, 1A–146A.
AMBROSE, WILLIAM G., JR., Are infaunal predators important in structuring marine soft-bottom communities?, 849–860.
AMEMIYA, CHRIS T. AND GARY W. LITMAN, Early evolution of immunoglobulin genes, 558–569.
American Society of Zoologists,
  Committees, iv–vi.
  Divisional officers, iv.
  Honorary members, vi.
  Minutes of annual business meeting, vii–viii.
  Officers for 1991, iv–vi.
  Presidents, iii.
  Sponsoring members, vi.
American Zoologist,
  Directions for authors, cover 1.
  Editorial board, cover 1.
  Statement of ownership, xii.
  Subscriptions, cover 1.
ANIMAL BEHAVIOR: PAST, PRESENT AND FUTURE, 281–348.
  Animal behavior, 283–285.
  Comparative ethology of crustaceans, 329–337.
  Functions of bird song, 318–328.
  Future trends in animal behavior, 338–348.
  Nature-nurture: Ethology and sociobiology, 286–296.
  Ontogeny of dominance, 306–317.
  Signals for survival in crickets, 297–305.
Animal migration, recent developments in the study of, 151–276.
ANTARCTIC MARINE BIOLOGY, 1–149.
  Antarctic ice biota, 17–33.
  Antarctic planktonic production, 5–16.
  Biology of the antarctic krill, 49–63.
  Cold adaptation in marine organisms, 81–92.
  Ecology of antarctic seals, 143–149.
  Ecology of McMurdo Sound seaweeds, 35–48.
  Evolution of notothenoid fishes, 93–109.
  Introduction, 3–4.
  Reproduction of antarctic marine invertebrates, 65–80.
  Reproductive and foraging energetics, 111–130.
  Seabirds in polar oceans, 131–142.
APPLICATION OF MOLECULAR GENETIC APPROACHES IN UNDERSTANDING THE BASIS FOR IMMUNE AND OTHER FORMS OF SPECIFIC RECOGNITION, 547–597.
  Allorecognition in *Hydractinia,* 549–557.
  Chicken major histocompatibility complex, 592–597.
  Evolution of immunoglobulin genes, 558–569.
  MHC-like molecules and xenoantibody crossreactions, 570–579.
  Reagents specific for *Xenopus* MHC class I antigens, 580–591.
BARLOW, GEORGE W., Nature-nurture and the debates surrounding ethology and sociobiology, 286–296.
BLOCK, BARBARA, Evolutionary novelties: How fish have built a heater out of muscle, 726–742.
Book reviews, 277–278, 472–474, 598–599, 757–758, 901–902.
BOSCH, ISIDRO, see PEARSE, JOHN S. *et al.*
BRODEUR, RICHARD D., see QUINN, THOMAS P.
BROWER, LINCOLN P. AND STEPHEN B. MALCOLM, Animal migrations: Endangered phenomena, 265–276.
BROWN, BETSY, see WILSON, W. HERBERT, JR.
BURKE, ANN CAMPBELL, The development and evolution of the turtle body plan: Inferring intrinsic aspects of the evolutionary process from experimental embryology, 616–627.
BYERS, BRUCE E., see KROODSMA, DONALD E.
CANEL, CAMILIO, see FLAJNIK, MARTIN F. *et al.*
CARRIER, DAVID R., Conflict in the hypaxial musculoskeletal system: Documenting an evolutionary constraint, 644–654.
CHRISTY, JOHN H. AND MICHAEL SALMON, Comparative studies of reproductive behavior in mantis shrimps and fiddler crabs, 329–331.
CLARKE, ANDREW, What is cold adaptation and how should we measure it?, 81–92.
CLEGG, JAMES S. AND DENYS N. WHEATLEY, Intracellular organization: Evolutionary origins and possible consequences to metabolic rate control in vertebrates, 504–513.
COSTA, DANIEL P., Reproductive and foraging energetics of high latitude penguins, albatrosses and pinnipeds: Implications for life history patterns, 111–130.
DINGLE, HUGH, Evolutionary genetics of animal migration, 253–264.
DINGLE, HUGH AND SIDNEY A. GAUTHREAUX, JR., Introduction to the symposium: The maturing of migration, 153–155.
DU PASQUIER, LOUIS, see FLAJNIK, MARTIN F. *et al.*
EMLET, RICHARD B., Functional constraints on the evolution of larval forms of marine invertebrates: Experimental and comparative evidence, 707–725.
EASTMAN, JOSEPH T., Evolution and diversification of Antarctic notothenioid fishes, 93–109.
EXPERIMENTAL APPROACHES TO THE ANALYSIS OF FORM AND FUNCTION, 601–756.
  Analysis of clinal variation, 694–706.
  Documenting an evolutionary constraint, 644–654.
  Evolutionary embryology, 605–615.
  Experiment and the evolution of function, 743–756.
  Experimental ecomorphology, 680–693.
  Introduction, 603–604.

Invertebrate larval forms, 707–725.
Neural tube morphogenesis, 628–643.
Strain analysis in functional morphology, 655–669.
Thermogenesis in muscle, 726–742.
Turtle development and evolution, 616–627.
"Wing" control in a mollusc and a bird, 670–679.
FAIRBAIRN, DAPHNE J., see ROFF, DEREK.
FLAJNIK, MARTIN F., ELEANOR TAYLOR, CAMILIO CANEL, DARIO GROSSBERGER, AND LOUIS DU PASQUIER, Reagents specific for MHC class I antigens of *Xenopus*, 580–591.
Form and function, experimental approaches to the analysis of, 601–756.
FRANKS, ROBERTA R., *Cis*-regulatory elements required for a lineage-specific gene expression in the sea urchin embryo, 490–492.
FRIESEN, LARRY JON, see WENNER, ADRIAN M. *et al.*
GARRISON, DAVID L., Antarctic sea ice biota, 17–33.
GAUTREAUX, SIDNEY A., JR., The flight behavior of migrating birds in changing wind fields: Radar and visual analysis, 187–204.
GAUTREAUX, SIDNEY A., JR., see DINGLE, HUGH.
GORDON, DANA M., see GORDON, MALCOLM S.
GORDON, MALCOLM S. AND DANA M. GORDON, Introduction to the symposium: The origins and evolution of metabolic pathways in animals, 477–478.
GOSLOW, G. E., JR., see WELSFORD, IAN G. *et al.*
GROSSBERGER, DARIO, see FLAJNIK, MARTIN F. *et al.*
GUILLEMOT, FRANCOIS, The chicken major histocompatibility complex (MHC): Evolutionary conserved class I and class II genes are closely associated with non-MHC genes, 592–597.
HALPIN, ZULEYMA TANG, Introduction to the symposium: Animal behavior: Past, present, and future, 283–285.
HANKEN, JAMES AND MARVALEE H. WAKE, Introduction to the symposium: Experimental approaches to the analysis of form and function, 603–604.
HIGHSMITH, RAYMOND C. AND KENNETH O. COYLE, Amphipod life histories: Community structure, impact of temperature on decoupled growth and maturation rates, productivity, and P:B ratios, 861–873.
HIGHSMITH, RAYMOND C., see COYLE, KENNETH O.
HOLEKAMP, KAY E. AND LAURA SMALE, Dominance acquisition during mammalian social development: The "inheritance" of maternal rank, 306–317.
HOY, RONALD R., Signals for survival in the lives of crickets, 297–305.
HUNT, GEORGE L., JR., Marine ecology of seabirds in polar oceans, 131–142.
Invited review paper—Division of Invertebrate Zoology, 768–782.
JACOBSON, ANTONE G., Experimental analyses of the shaping of the neural plate and tube, 628–643.
JAMES, FRANCES C., Complementary descriptive and experimental studies of clinal variation in birds, 694–706.
KAUFMAN, JIM, JAN SALOMONSEN, PATRICIA RIEGERT, AND KARSTEN SKJØDT, Using chicken class I sequences to understand how xenoantibodies crossreact with MHC-like molecules in nonmammalian vertebrates, 570–579.
KIRSCHVINK, ATSUKO KOBAYASHI, see KIRSCHVINK, JOSEPH L.
KIRSCHVINK, JOSEPH L. AND ATSUKO KOBAYASHI KIRSCHVINK, Is geomagnetic sensitivity real? Replication of the Walker-Bitterman magnetic conditioning experiment in honey bees, 169–185.
KNEIB, R. T., Indirect effects in experimental studies of marine soft-sediment communities, 874–885.
KROODSMA, DONALD E. AND BRUCE E. BYERS, The function(s) of bird song, 318–328.
LEBLANC, JANINE M. AND LESLIE A. LEINWAND, The diversity of myosin-based contractile systems in eukaryotic cells, 514–521.
LEIM, KAREL F., Toward a new morphology: Pluralism in research and education, 759–767.
LEINWAND, LESLIE A., see LEBLANC, JANINE M.
LEVIN, LISA ANN, Interactions between metazoans and large, agglutinating protozoans: Implications for the community structure of deep-sea benthos, 886–900.
LITMAN, GARY W., see AMEMIYA, CHRIS T.
LIVINGSTONE, DAVID ROBERT, Origins and evolution of pathways of anaerobic metabolism in the animal kingdom, 522–534.
LOMBARD, R. ERIC, Experiment and comprehending the evolution of function, 743–756.
LOWERY, MARY SUE, see SOMERO, GEORGE N. *et al.*
MALCOLM, STEPHEN B., see BROWER, LINCOLN P.
MCCLINTOCK, JAMES B. AND JOHN S. PEARSE, Introduction to the symposium: Antarctic marine biology, 3–4.
MCCLINTOCK, JAMES B., see PEARSE, JOHN S. *et al.*
MEADE, DANIEL E., see WENNER, ADRIAN M. *et al.*
Metabolic pathways in animals, the origin and evolution of, 475–545.
MEYERS, R. A., see WELSFORD, IAN G. *et al.*
MILLER, KATHY ANN AND JOHN S. PEARSE, Ecological studies of seaweeds in McMurdo Sound, Antarctica, 35–48.
MOORE, JOHN A., Science as a way of knowing—VII A conceptual framework for biology—Part III, 349–471.
MÜLLER, GERD B., Experimental strategies in evolutionary embryology, 605–615.
NAKANISHI, KOJI, Why 11-cis-retinal?, 479–489.
NEW PERSPECTIVES IN SOFT-SEDIMENT ECOLOGY, 783–900.
Amphipod life histories and production, 861–873.
Benthic rhizopod–metazoan interactions, 886–900.
Demographic aspects of patch dynamics, 808–820.
Episodic predation in infaunal communities, 840–848.
Host evolution, 831–839.
Importance of infaunal predation, 849–860.
Indirect effects, 874–885.
Introduction, 785–788.
Parasites and community structure, 821–830.
Recruitment of infauna, 797–807.
The sedimentary milieu, 789–796.
Obituary, 279–280.
THE ORIGINS AND EVOLUTION OF METABOLIC PATHWAYS IN ANIMALS, 475–545.
Enzyme compartmentation, 493–503.
Evolution of anaerobic metabolism, 522–534.

Gene regulation in the sea urchin embryo, 490–492.
Introduction, 477–478.
Myosin heavy chain/gene family/sequence diversity, 514–521.
Origin and evolution of hemoglobin, 535–545.
Origins of intracellular organization, 504–513.
Why 11-cis-retinal?, 479–489.
Past-presidential address, 759–767.
PEARSE, JOHN S., JAMES B. MCCLINTOCK, AND ISIDRO BOSCH, Reproduction of antarctic benthic marine invertebrates: Tempos, modes, and timing, 65–80.
PEARSE, JOHN S., see MCCLINTOCK, JAMES B.
PEARSE, JOHN S., see MILLER, KATHY ANN.
QUETIN, LANGDON B. AND ROBIN M. ROSS, Behavioral and physiological characteristics of the antarctic krill, *Euphausia superba*, 49–63.
QUETIN, LANGDON B., see ROSS, ROBIN M.
QUINN, THOMAS P. AND RICHARD D. BRODEUR, Intraspecific variations in the movement patterns of marine animals, 231–241.
RANKIN, M. A., Endocrine effects on migration, 217–230.
RECENT DEVELOPMENTS IN THE STUDY OF ANIMAL MIGRATION, 151–276.
Animal migrations: Endangered phenomena, 265–276.
Animal orientation systems, 157–167.
Constraints of migration, 205–215.
Endocrine effects on migration, 217–230.
Genetics of migration, 253–264.
Honeybee magnetoreception, 169–185.
Intra-specific movement patterns, 231–241.
Introduction, 153–155.
Migrating bird flight behavior, 187–204.
Migratory polymorphisms in insects, 243–251.
REIGERT, PATRICIA, see KAUFMAN, JIM *et al.*
RIGGS, AUSTEN F., Aspects of the origin and evolution of non-vertebrate hemoglobins, 535–545.
RIVKIN, RICHARD B., Seasonal patterns of planktonic production in McMurdo Sound, Antarctica, 5–16.
ROBERTS, SUSAN J., see SOMERO, GEORGE N.
ROFF, DEREK A., Life history consequences of bioenergetic and biomechanical constraints on migration, 205–215.
ROFF, DEREK A. AND DAPHNE J. FAIRBAIRN, Wing dimorphisms and the evolution of migratory polymorphisms among the insecta, 243–251.
RUIZ, GREGORY M., Consequences of parasitism to marine invertebrates: Host evolution, 831–839.
SALMON, MICHAEL, see CHRISTY, JOHN H.
SALOMONSEN, JAN, see KAUFMAN, JIM *et al.*
SATTERLEE, R. A., see WELSFORD, IAN G. *et al.*
Science as a way of knowing—VII A conceptual framework for biology—Part III, 349–471.
SHENK, MICHAEL ANDREW, Allorecognition in the colonial marine hydroid *Hydractinia* (Cnidaria/Hydrozoa), 549–557.
SINIFF, DONALD B., An overview of the ecology of the Antarctic seals, 143–149.
SKJØDT, KARSTEN, see KAUFMAN, JIM *et al.*
SMALE, LAURA, see HOLEKAMP, KAY E.
Soft-sediment ecology, New perspectives in, 783–900.
SOMERO, GEORGE N., MARY SUE LOWERY, AND SUSAN J. ROBERTS, Compartmentation of animal enzymes: Physiological and evolutionary significance, 493–503.
SOUSA, WAYNE P., Can models of soft-sediment community structure be complete without parasites?, 821–830.
Specific recognition, application of molecular genetic approaches in understanding the basis for immune and other forms of, 547–597.
STAMPS, JUDY A., Why evolutionary issues are reviving interest in proximate behavioral mechanisms, 338–348.
SWARTZ, SHARON M., Strain analysis as a tool for functional morphology, 655–669.
TAYLOR, ELEANOR, see FLAJNIK, MARTIN F. *et al.*
WAINWRIGHT, PETER C., Ecomorphology: Experimental functional anatomy for ecological problems, 680–693.
WAKE, MARVALEE H., see HANKEN, JAMES.
WATLING, LES, The sedimentary milieu and its consequences for resident organisms, 789–796.
WELSFORD, IAN G., R. A. MEYERS, D. S. WILSON, R. A. SATTERLIE, AND G. E. GOSLOW, JR., Neuromuscular organization for "wing" control in a mollusc (*Clione liacina*) and a bird (*Columba livia*); Parallels in design, 670–679.
WENNER, ADRIAN M., DANIEL E. MEADE, AND LARRY JON FRIESEN, Recruitment, search behavior, and flight ranges of honey bees, 768–782.
WHEATLEY, DENYS N., see CLEGG, JAMES S.
WHITLATCH, ROBERT B., see ZAJAC, ROMAN N.
WILSON, D. S., see WELSFORD, IAN G. *et al.*
WILSON, W. HERBERT, JR., The foraging ecology of migratory shorebirds in marine soft-sediment communities: The effects of episodic predation on prey population, 840–848.
WILSON, W. HERBERT, JR. AND BETSY BROWN, Introduction to the symposium: Trends in soft-sediment ecology during the period 1970–1989, 785–788.
WOODIN, SARAH ANN, Recruitment of infauna: Positive or negative cues?, 797–807.
ZAJAC, ROMAN N. AND ROBERT B. WHITLATCH, Demographic aspects of marine, soft-sediment patch dynamics, 808–820.